

SEQUENCE LISTING

<110> Byrne, Barry J.
Mah, Cathryn S.

<120> rAAV COMPOSITIONS AND METHODS FOR DELIVERY OF HUMAN FACTOR VII
POLYPEPTIDES AND TREATMENT OF HEMOPHILIA A

<130> 4300.014300

<140> UNKNOWN

<141> 2004-12-28

<150> PCT/US03/20756

<151> 2003-06-30

<150> 60/392,725

<151> 2002-06-28

<160> 17

<170> PatentIn version 3.2

<210> 1

<211> 1440

<212> DNA

<213> Homo sapiens

<400> 1

```
tcaacaggca ggggcagcac tgcagagatt tcatcatggt ctcccaggcc ctcaggctcc      60
tctgccttct gcttgggctt cagggctgcc tggtgcagg cggggctcgt aaggcctcag      120
gaggagaaac acgggacatg ccgtggaagc cggggcctca cagagtcttc gtaaccagg      180
aggaagccca cggcgtcctg caccggcgcc ggcgcgcca cgcgttcctg gaggagctgc      240
ggccgggctc cctggagagg gagtgcagg aggagcagt ctccttcgag gaggccccgg      300
agatcttcaa ggacgcggag aggacgaagc tgttctggat ttcttacagt gatggggacc      360
agtgtgcctc aagtccatgc cagaatgggg gctcctgcaa ggaccagctc cagtccata      420
tctgcttctg cctccctgcc ttcgagggcc ggaactgtga gacgcacaag gatgaccagc      480
tgatctgtgt gaacgagaac ggcggctgtg agcagtactg cagtgaccac acgggcacca      540
agcgtcctg tcggtgccac gaggggtact ctctgctggc agacgggggtg tcctgcacac      600
ccacagttga atatccatgt ggaaaaatac ctattctaga aaaaagaaat gccagcaaac      660
cccaaggccg aattgtgggg ggcaagggtg gccccaaagg ggagtgtcca tggcaggctc      720
tgttggttgt gaatggagct cagttgtgtg gggggaccct gatcaacacc atctgggtgg      780
tctccgcggc cactgtttc gacaaaatca agaactggag gaacctgatc gcggtgctgg      840
gcgagcacga cctcagcgag cacgacgggg atgagcagag ccggcgggtg gcgcagggtca      900
tcatccccag cacgtacgtc ccgggcacca ccaaccacga catcgcgctg ctccgcctgc      960
```

accagcccgt ggtcctcact gaccatgtgg tgcccctctg cctgcccga cggacgttct 1020
 ctgagaggac gctggccttc gtgcgcttct cattggtcag cggctggggc cagctgctgg 1080
 accgtggcgc cacggccctg gagctcatgg tgctcaacgt gccccggctg atgaccagg 1140
 actgcctgca gcagtcacgg aaggtgggag actccccaaa tatcacggag tacatgttct 1200
 gtgccggcta ctcggatggc agcaaggact cctgcaaggg ggacagtgga ggcccacatg 1260
 ccaccacta ccggggcacg tggtagctga cgggcatcgt cagctggggc cagggtgcg 1320
 caaccgtggg ccactttggg gtgtacacca ggggtctcca gtacatcgag tggctgcaaa 1380
 agctcatgcg ctcagagcca cgcccaggag tcctcctgcg agccccattt ccctagccca 1440

<210> 2
 <211> 466
 <212> PRT
 <213> Homo sapiens

<400> 2

Met Val Ser Gln Ala Leu Arg Leu Leu Cys Leu Leu Leu Gly Leu Gln
 1 5 10 15

Gly Cys Leu Ala Ala Gly Gly Val Ala Lys Ala Ser Gly Gly Glu Thr
 20 25 30

Arg Asp Met Pro Trp Lys Pro Gly Pro His Arg Val Phe Val Thr Gln
 35 40 45

Glu Glu Ala His Gly Val Leu His Arg Arg Arg Arg Ala Asn Ala Phe
 50 55 60

Leu Glu Glu Leu Arg Pro Gly Ser Leu Glu Arg Glu Cys Lys Glu Glu
 65 70 75 80

Gln Cys Ser Phe Glu Glu Ala Arg Glu Ile Phe Lys Asp Ala Glu Arg
 85 90 95

Thr Lys Leu Phe Trp Ile Ser Tyr Ser Asp Gly Asp Gln Cys Ala Ser
 100 105 110

Ser Pro Cys Gln Asn Gly Gly Ser Cys Lys Asp Gln Leu Gln Ser Tyr
 115 120 125

Ile Cys Phe Cys Leu Pro Ala Phe Glu Gly Arg Asn Cys Glu Thr His
 130 135 140

Lys Asp Asp Gln Leu Ile Cys Val Asn Glu Asn Gly Gly Cys Glu Gln

145		150		155		160
Tyr Cys Ser Asp His Thr Gly Thr Lys Arg Ser Cys Arg Cys His Glu						
		165		170		175
Gly Tyr Ser Leu Leu Ala Asp Gly Val Ser Cys Thr Pro Thr Val Glu						
		180		185		190
Tyr Pro Cys Gly Lys Ile Pro Ile Leu Glu Lys Arg Asn Ala Ser Lys						
		195		200		205
Pro Gln Gly Arg Ile Val Gly Gly Lys Val Cys Pro Lys Gly Glu Cys						
		210		215		220
Pro Trp Gln Val Leu Leu Leu Val Asn Gly Ala Gln Leu Cys Gly Gly						
		225		230		235
						240
Thr Leu Ile Asn Thr Ile Trp Val Val Ser Ala Ala His Cys Phe Asp						
		245		250		255
Lys Ile Lys Asn Trp Arg Asn Leu Ile Ala Val Leu Gly Glu His Asp						
		260		265		270
Leu Ser Glu His Asp Gly Asp Glu Gln Ser Arg Arg Val Ala Gln Val						
		275		280		285
Ile Ile Pro Ser Thr Tyr Val Pro Gly Thr Thr Asn His Asp Ile Ala						
		290		295		300
Leu Leu Arg Leu His Gln Pro Val Val Leu Thr Asp His Val Val Pro						
		305		310		315
						320
Leu Cys Leu Pro Glu Arg Thr Phe Ser Glu Arg Thr Leu Ala Phe Val						
		325		330		335
Arg Phe Ser Leu Val Ser Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala						
		340		345		350
Thr Ala Leu Glu Leu Met Val Leu Asn Val Pro Arg Leu Met Thr Gln						
		355		360		365
Asp Cys Leu Gln Gln Ser Arg Lys Val Gly Asp Ser Pro Asn Ile Thr						
		370		375		380
Glu Tyr Met Phe Cys Ala Gly Tyr Ser Asp Gly Ser Lys Asp Ser Cys						
		385		390		395
						400

Lys Gly Asp Ser Gly Gly Pro His Ala Thr His Tyr Arg Gly Thr Trp
405 410 415

Tyr Leu Thr Gly Ile Val Ser Trp Gly Gln Gly Cys Ala Thr Val Gly
420 425 430

His Phe Gly Val Tyr Thr Arg Val Ser Gln Tyr Ile Glu Trp Leu Gln
435 440 445

Lys Leu Met Arg Ser Glu Pro Arg Pro Gly Val Leu Leu Arg Ala Pro
450 455 460

Phe Pro
465

<210> 3
<211> 1401
<212> DNA
<213> Homo sapiens

<400> 3
atgggtctccc aggccctcag gctcctctgc cttctgcttg ggcttcaggg ctgcctggct 60
gcaggcgggg tcgctaaggc ctcaggagga gaaacacggg acatgccgtg gaagccgggg 120
cctcacagag tcttcgtaac ccaggaggaa gccacggcg tctgcaccg gcgccggcgc 180
gccaacgcgt tcttgaggga gctgcggccg ggctccctgg agagggagtg caaggaggag 240
cagtgtctct tcgaggaggc ccgggagatc ttcaaggacg cggagaggac gaagctgttc 300
tggatttctt acagtgatgg ggaccagtgt gcctcaagtc catgccagaa tgggggctcc 360
tgcaaggacc agctccagtc ctatatctgc ttctgcctcc ctgccttcga gggccggaac 420
tgtgagacgc acaaggatga ccagctgac tgtgtgaacg agaacggcgg ctgtgagcag 480
tactgcagtg accacacggg caccaagcgc tctgtcgggt gccacgaggg gtactctctg 540
ctggcagacg ggggtgtcctg cacaccaca gttgaatata catgtggaaa aatacctatt 600
ctagaaaaaa gaaatgccag caaaccccaa ggccgaattg tggggggcaa ggtgtgcccc 660
aaaggggagt gtccatggca ggtcctgttg ttgggtgaatg gagctcagtt gtgtgggggg 720
accctgatca acaccatctg ggtggtctcc gcggcccact gtttcgacaa aatcaagaac 780
tggaggaacc tgatcgcggt gctgggcgag cagcacctca gcgagcacga cggggatgag 840
cagagccggc ggggtggcgca ggtcatcatc cccagcacgt acgtcccggg caccaccaac 900
cacgacatcg cgtgtctccg cctgcaccag cccgtggtcc tcaactgacca tgtgtgtgcc 960
ctctgcctgc ccgaacggac gttctctgag aggacgtgg ccttcgtgcg cttctcattg 1020

gtcagcggct ggggccagct gctggaccgt ggcgccacgg ccctggagct catggtgctc 1080
 aacgtgcccc ggctgatgac ccaggactgc ctgcagcagt cacggaaggt gggagactcc 1140
 ccaaatatca cggagtacat gttctgtgcc ggctactcgg atggcagcaa ggactcctgc 1200
 aagggggaca gtggaggccc acatgccacc cactaccggg gcacgtggta cctgacgggc 1260
 atcgtcagct ggggccaggg ctgcgcaacc gtggggcact ttgggggtgta caccagggtc 1320
 tcccagtaca tcgagtggct gcaaaagctc atgcgctcag agccacgccc aggagtcctc 1380
 ctgcgagccc catttcccta g 1401

<210> 4
 <211> 466
 <212> PRT
 <213> Homo sapiens

<400> 4

Met Val Ser Gln Ala Leu Arg Leu Leu Cys Leu Leu Leu Gly Leu Gln
 1 5 10 15

Gly Cys Leu Ala Ala Gly Gly Val Ala Lys Ala Ser Gly Gly Glu Thr
 20 25 30

Arg Asp Met Pro Trp Lys Pro Gly Pro His Arg Val Phe Val Thr Gln
 35 40 45

Glu Glu Ala His Gly Val Leu His Arg Arg Arg Arg Ala Asn Ala Phe
 50 55 60

Leu Glu Glu Leu Arg Pro Gly Ser Leu Glu Arg Glu Cys Lys Glu Glu
 65 70 75 80

Gln Cys Ser Phe Glu Glu Ala Arg Glu Ile Phe Lys Asp Ala Glu Arg
 85 90 95

Thr Lys Leu Phe Trp Ile Ser Tyr Ser Asp Gly Asp Gln Cys Ala Ser
 100 105 110

Ser Pro Cys Gln Asn Gly Gly Ser Cys Lys Asp Gln Leu Gln Ser Tyr
 115 120 125

Ile Cys Phe Cys Leu Pro Ala Phe Glu Gly Arg Asn Cys Glu Thr His
 130 135 140

Lys Asp Asp Gln Leu Ile Cys Val Asn Glu Asn Gly Gly Cys Glu Gln

145		150		155		160
Tyr Cys Ser Asp His Thr Gly Thr Lys Arg Ser Cys Arg Cys His Glu						
		165		170		175
Gly Tyr Ser Leu Leu Ala Asp Gly Val Ser Cys Thr Pro Thr Val Glu						
		180		185		190
Tyr Pro Cys Gly Lys Ile Pro Ile Leu Glu Lys Arg Asn Ala Ser Lys						
		195		200		205
Pro Gln Gly Arg Ile Val Gly Gly Lys Val Cys Pro Lys Gly Glu Cys						
		210		215		220
Pro Trp Gln Val Leu Leu Leu Val Asn Gly Ala Gln Leu Cys Gly Gly						
		225		230		235
Thr Leu Ile Asn Thr Ile Trp Val Val Ser Ala Ala His Cys Phe Asp						
		245		250		255
Lys Ile Lys Asn Trp Arg Asn Leu Ile Ala Val Leu Gly Glu His Asp						
		260		265		270
Leu Ser Glu His Asp Gly Asp Glu Gln Ser Arg Arg Val Ala Gln Val						
		275		280		285
Ile Ile Pro Ser Thr Tyr Val Pro Gly Thr Thr Asn His Asp Ile Ala						
		290		295		300
Leu Leu Arg Leu His Gln Pro Val Val Leu Thr Asp His Val Val Pro						
		305		310		315
Leu Cys Leu Pro Glu Arg Thr Phe Ser Glu Arg Thr Leu Ala Phe Val						
		325		330		335
Arg Phe Ser Leu Val Ser Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala						
		340		345		350
Thr Ala Leu Glu Leu Met Val Leu Asn Val Pro Arg Leu Met Thr Gln						
		355		360		365
Asp Cys Leu Gln Gln Ser Arg Lys Val Gly Asp Ser Pro Asn Ile Thr						
		370		375		380
Glu Tyr Met Phe Cys Ala Gly Tyr Ser Asp Gly Ser Lys Asp Ser Cys						
		385		390		395
						400

Lys Gly Asp Ser Gly Gly Pro His Ala Thr His Tyr Arg Gly Thr Trp
405 410 415

Tyr Leu Thr Gly Ile Val Ser Trp Gly Gln Gly Cys Ala Thr Val Gly
420 425 430

His Phe Gly Val Tyr Thr Arg Val Ser Gln Tyr Ile Glu Trp Leu Gln
435 440 445

Lys Leu Met Arg Ser Glu Pro Arg Pro Gly Val Leu Leu Arg Ala Pro
450 455 460

Phe Pro
465

<210> 5
<211> 1335
<212> DNA
<213> Homo sapiens

<400> 5
atggtctccc aggccctcag gtcctctgc cttctgcttg ggcttcaggg ctgcctggct 60
gcagtcttcg taaccacagga ggaagccac ggcgtcctgc accggcgccg gcgcgccaac 120
gcgttctctgg aggagctgcg gccgggctcc ctggagaggg agtgcaagga ggagcagtgc 180
tccttcgagg aggcccgga gatcttcaag gacgcggaga ggacgaagct gttctggatt 240
tcttacagtg atggggacca gtgtgcctca agtccatgcc agaatggggg ctctgcaag 300
gaccagctcc agtcctatat ctgcttctgc ctccctgcct tcgagggccg gaactgtgag 360
acgcacaagg atgaccagct gatctgtgtg aacgagaacg gcggctgtga gcagtactgc 420
agtgaccaca cgggcaccaa gcgctcctgt cggtgccacg aggggtactc tctgctggca 480
gacggggtgt cctgcacacc cacagttgaa tatccatgtg gaaaaatacc tattctagaa 540
aaaagaaatg ccagcaaacc ccaaggccga attgtggggg gcaagggtgtg ccccaaaggg 600
gagtgtccat ggcaggctct gttgttggtg aatggagctc agttgtgtgg ggggaccctg 660
atcaacacca tctgggtggt ctccgcggcc cactgtttcg acaaaatcaa gaactggagg 720
aacctgatcg cgggtgctggg cgagcacgac ctacgcgagc acgacgggga tgagcagagc 780
cggcgggtgg cgcaggctcat catccccagc acgtacgtcc cgggcaccac caaccacgac 840
atcgcgctgc tccgcctgca ccagcccgtg gtcctcactg accatgtggt gccctctgc 900
ctgcccgaac ggacgttctc tgagaggacg ctggccttcg tgcgcttctc attggtcagc 960
ggctggggcc agctgctgga ccgtggcgcc acggccctgg agctcatggt gctcaacgtg 1020

```

ccccggctga tgaccagga ctgcctgcag cagtcacgga aggtgggaga ctccccaaat 1080
atcacggagt acatgttctg tgccggctac tcggatggca gcaaggactc ctgcaagggg 1140
gacagtggag gccacatgc caccactac cggggcacgt ggtacctgac gggcatcgtc 1200
agctggggcc agggctgcgc aaccgtgggc cactttgggg tgtacaccag ggtctcccag 1260
tacatcgagt ggctgcaaaa gctcatgcgc tcagagccac gccaggagt cctcctgcga 1320
gcccatttc cctag 1335

```

<210> 6

<211> 444

<212> PRT

<213> Homo sapiens

<400> 6

```

Met Val Ser Gln Ala Leu Arg Leu Leu Cys Leu Leu Leu Gly Leu Gln
1          5          10          15

```

```

Gly Cys Leu Ala Ala Val Phe Val Thr Gln Glu Glu Ala His Gly Val
          20          25          30

```

```

Leu His Arg Arg Arg Arg Ala Asn Ala Phe Leu Glu Glu Leu Arg Pro
          35          40          45

```

```

Gly Ser Leu Glu Arg Glu Cys Lys Glu Glu Gln Cys Ser Phe Glu Glu
50          55          60

```

```

Ala Arg Glu Ile Phe Lys Asp Ala Glu Arg Thr Lys Leu Phe Trp Ile
65          70          75          80

```

```

Ser Tyr Ser Asp Gly Asp Gln Cys Ala Ser Ser Pro Cys Gln Asn Gly
          85          90          95

```

```

Gly Ser Cys Lys Asp Gln Leu Gln Ser Tyr Ile Cys Phe Cys Leu Pro
          100          105          110

```

```

Ala Phe Glu Gly Arg Asn Cys Glu Thr His Lys Asp Asp Gln Leu Ile
          115          120          125

```

```

Cys Val Asn Glu Asn Gly Gly Cys Glu Gln Tyr Cys Ser Asp His Thr
          130          135          140

```

```

Gly Thr Lys Arg Ser Cys Arg Cys His Glu Gly Tyr Ser Leu Leu Ala
          145          150          155          160

```


Asp Gly Val Ser Cys Thr Pro Thr Val Glu Tyr Pro Cys Gly Lys Ile
 165 170 175

Pro Ile Leu Glu Lys Arg Asn Ala Ser Lys Pro Gln Gly Arg Ile Val
 180 185 190

Gly Gly Lys Val Cys Pro Lys Gly Glu Cys Pro Trp Gln Val Leu Leu
 195 200 205

Leu Val Asn Gly Ala Gln Leu Cys Gly Gly Thr Leu Ile Asn Thr Ile
 210 215 220

Trp Val Val Ser Ala Ala His Cys Phe Asp Lys Ile Lys Asn Trp Arg
 225 230 235 240

Asn Leu Ile Ala Val Leu Gly Glu His Asp Leu Ser Glu His Asp Gly
 245 250 255

Asp Glu Gln Ser Arg Arg Val Ala Gln Val Ile Ile Pro Ser Thr Tyr
 260 265 270

Val Pro Gly Thr Thr Asn His Asp Ile Ala Leu Leu Arg Leu His Gln
 275 280 285

Pro Val Val Leu Thr Asp His Val Val Pro Leu Cys Leu Pro Glu Arg
 290 295 300

Thr Phe Ser Glu Arg Thr Leu Ala Phe Val Arg Phe Ser Leu Val Ser
 305 310 315 320

Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala Thr Ala Leu Glu Leu Met
 325 330 335

Val Leu Asn Val Pro Arg Leu Met Thr Gln Asp Cys Leu Gln Gln Ser
 340 345 350

Arg Lys Val Gly Asp Ser Pro Asn Ile Thr Glu Tyr Met Phe Cys Ala
 355 360 365

Gly Tyr Ser Asp Gly Ser Lys Asp Ser Cys Lys Gly Asp Ser Gly Gly
 370 375 380

Pro His Ala Thr His Tyr Arg Gly Thr Trp Tyr Leu Thr Gly Ile Val
 385 390 395 400

Ser Trp Gly Gln Gly Cys Ala Thr Val Gly His Phe Gly Val Tyr Thr
405 410 415

Arg Val Ser Gln Tyr Ile Glu Trp Leu Gln Lys Leu Met Arg Ser Glu
420 425 430

Pro Arg Pro Gly Val Leu Leu Arg Ala Pro Phe Pro
435 440

<210> 7
<211> 1341
<212> DNA
<213> Rattus norvegicus

<400> 7
atggttccac agactcacgg actgctgctt ctctactttc tgetccagct ccagggaccc 60
ctaggggctg tgggttttcat aaccaggag gaagcacacg gtgtcctaca caggcaaagg 120
cgtgccaaact cactcctaga ggagcttttg tctagctcct tggagaggga gtgcaatgaa 180
gagcgggtgct cctttgagga ggcccgagag atcttcaaga gccctgagag aaccaagcag 240
ttctggacta ttacagcga tggcgaccag tgtgcctcga atccatgtca gaacgggggt 300
acctgccagg atcacctcaa gtcttatgtc tgcttctgcc ccctagactt tgagggccgg 360
aactgtgaga aaaacaagaa tgagcagctg atctgtgcaa atgaaaatgg tgactgtgac 420
cagtactgca gggaccacgt agggaccaag cgtacctgta gctgtcacga ggactacgtg 480
ctgcagccag atgaggtgtc ctgcaaacca aaagttgagt acccatgcgg gagaatacct 540
gttgtagaaa aaagaaactt cagcagaccc caaggccgga ttgtgggagg ctatgtgtgc 600
cccaaagggg agtgcccatg gcaggctgtg ctgaaattca atgaggcatt gctgtgtggg 660
gccgtcctgc tggacaccag atggatagta actgcagccc actgcttcga taaattcggg 720
aaattggtaa acatcacagt ggtgttggt gaacacgact tcagtgagaa ggaggggact 780
gagcaagtac ggctggtgga acaggtcac atgcccaca agtacacccg cggcaggact 840
gacatgaca tcgccctggt ccgccttcac cggcctgtaa ccttactga ctacgtggtg 900
cctctgtgtc tgccatgaac ggccttctcc gagaacaccc tagccagcat ccgcttctcg 960
agggctcagc gctggggcca gctactggac cgtggtgcca cagctctgga gctcatggtc 1020
atcgaggtgc cccggctgat gaccaggac tgccctggagc atgcccaca cagtgtctaac 1080
acccccagaa tcacggagaa catgttctgc gccggctaca tggacggcac caaggacgcc 1140
tgcaaggggtg acagtggagg cccacacgcc acccactacc atggcacttg gtatctgaca 1200
gggtgtgtca gctgggggga gggctgtgca gctatcggcc acatcgggggt gtacaccagg 1260
gtctcccagt acatagactg gctggtcaaa tacatggact ccaagctccg gggtgggatt 1320

tctcgagtct ccctactgta g

1341

<210> 8
<211> 446
<212> PRT
<213> Rattus norvegicus

<400> 8

Met Val Pro Gln Thr His Gly Leu Leu Leu Leu Tyr Phe Leu Leu Gln
1 5 10 15

Leu Gln Gly Pro Leu Gly Ala Val Val Phe Ile Thr Gln Glu Glu Ala
20 25 30

His Gly Val Leu His Arg Gln Arg Arg Ala Asn Ser Leu Leu Glu Glu
35 40 45

Leu Trp Ser Ser Ser Leu Glu Arg Glu Cys Asn Glu Glu Arg Cys Ser
50 55 60

Phe Glu Glu Ala Arg Glu Ile Phe Lys Ser Pro Glu Arg Thr Lys Gln
65 70 75 80

Phe Trp Thr Ile Tyr Ser Asp Gly Asp Gln Cys Ala Ser Asn Pro Cys
85 90 95

Gln Asn Gly Gly Thr Cys Gln Asp His Leu Lys Ser Tyr Val Cys Phe
100 105 110

Cys Pro Leu Asp Phe Glu Gly Arg Asn Cys Glu Lys Asn Lys Asn Glu
115 120 125

Gln Leu Ile Cys Ala Asn Glu Asn Gly Asp Cys Asp Gln Tyr Cys Arg
130 135 140

Asp His Val Gly Thr Lys Arg Thr Cys Ser Cys His Glu Asp Tyr Val
145 150 155 160

Leu Gln Pro Asp Glu Val Ser Cys Lys Pro Lys Val Glu Tyr Pro Cys
165 170 175

Gly Arg Ile Pro Val Val Glu Lys Arg Asn Phe Ser Arg Pro Gln Gly
180 185 190

Arg Ile Val Gly Gly Tyr Val Cys Pro Lys Gly Glu Cys Pro Trp Gln
195 200 205

Ala Val Leu Lys Phe Asn Glu Ala Leu Leu Cys Gly Ala Val Leu Leu
 210 215 220

Asp Thr Arg Trp Ile Val Thr Ala Ala His Cys Phe Asp Lys Phe Gly
 225 230 235 240

Lys Leu Val Asn Ile Thr Val Val Leu Gly Glu His Asp Phe Ser Glu
 245 250 255

Lys Glu Gly Thr Glu Gln Val Arg Leu Val Glu Gln Val Ile Met Pro
 260 265 270

Asn Lys Tyr Thr Arg Gly Arg Thr Asp His Asp Ile Ala Leu Val Arg
 275 280 285

Leu His Arg Pro Val Thr Phe Thr Asp Tyr Val Val Pro Leu Cys Leu
 290 295 300

Pro Glu Arg Ala Phe Ser Glu Asn Thr Leu Ala Ser Ile Arg Phe Ser
 305 310 315 320

Arg Val Ser Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala Thr Ala Leu
 325 330 335

Glu Leu Met Val Ile Glu Val Pro Arg Leu Met Thr Gln Asp Cys Leu
 340 345 350

Glu His Ala Lys His Ser Ala Asn Thr Pro Arg Ile Thr Glu Asn Met
 355 360 365

Phe Cys Ala Gly Tyr Met Asp Gly Thr Lys Asp Ala Cys Lys Gly Asp
 370 375 380

Ser Gly Gly Pro His Ala Thr His Tyr His Gly Thr Trp Tyr Leu Thr
 385 390 395 400

Gly Val Val Ser Trp Gly Glu Gly Cys Ala Ala Ile Gly His Ile Gly
 405 410 415

Val Tyr Thr Arg Val Ser Gln Tyr Ile Asp Trp Leu Val Lys Tyr Met
 420 425 430

Asp Ser Lys Leu Arg Val Gly Ile Ser Arg Val Ser Leu Leu
 435 440 445

<210> 9
 <211> 1671
 <212> DNA
 <213> Danio rerio

<400> 9
 atgagtctgc tgcttgtgtt ttctctgctc tggagtctcc attactgcca ttcagcagca 60
 gtgttcgtgc acagagatga agctcacgag gtgttgatca ggagcaaaag agccaactca 120
 ggctggtttg aggagctgaa gacggggaat ctggagcgcg agtgtctgga ggagaaatgc 180
 tcgtatgagg aggcgcgcga ggtgttcgag cacacagagg ccacgaatga gttctggaag 240
 atctacgatg ttaaagatca ctgcgcatcc agtccatgtg agcatgacgg gctctgcacc 300
 acacagaacg cggactccta catgtgtttg tgtgcgccgg gcttcagcgg acgccactgt 360
 gagcaatcga ttggagacgt tctcgactcc tgtctgcatg ataacggcgg ctgcgaacac 420
 ttctgcacgg agcaggacgg acggagaaac tgctcctgcg cagacgggta ttacctagat 480
 aacagcgggc agaagtgccg gagtcacgag gtgtttccat gtgggaaggt tcctctcctg 540
 caggctggaa aagctgcgga tcatcaggtg gatctcagat ctcgatcgt tggaggatct 600
 gaatgtccta aaggtcactg tccgtggcag gtgctgctga agtacgggtga gaagggtttc 660
 tgtggaggtg tgatctacaa gccacctgg atcctcacag ctgctcactg cttggaaaag 720
 ctcaaggtca agttcctcag gatagtggca ggtgagcatg atctggaggt ggacgagggc 780
 acggagcagc tcatccaggt ggatcagatg ttcacacacc ctgcgtacgt gtctgagaca 840
 gcggacagtg acatcgccct gctgcgtctg cgcaccccca tcgtctacag tgtgtatgcg 900
 gtgccggtgt gtttgccgct gcgggagatg gcggagcgcg agctgtgggc ggtcagcaaa 960
 cacacggtga gcggctgggg caaacgcagc gaggacgggc cgacctctcg cctgctgcgc 1020
 cggctgctgg tgccgcgcat ccgcacgcag gagtgtgtgc aggtcagcaa cctcacgctc 1080
 accagcaaca tgttctgcgc cggatacatc gagggccggc aggactcctg taagggtgac 1140
 agcggcgggc cgctggtgac ccggtaccga gacaccgcct tcctactggg catcgtgagc 1200
 tgggggaaag gctgcgctcg cccgggctcc tacggcatct acacacgcgt gtccaactac 1260
 ctgcagtga tccgacaaac aaccaacacc acgatacact gatgaagaca tgacccgggt 1320
 gcattgctca tcaagattgc tactcttagg tgaacaatta acaaataatta actattatag 1380
 ttaatgtttg taaaaaatag caaaattata ttgaaaataa aaaatatatta tattaattat 1440
 gaagtgcagg cgattacttt aattatccaa gacggtgtta tagcccaaaa tacccaatag 1500
 ttgagcatca gctgctttcc tgacatcctg tacatattag actcggatct gatattttgc 1560
 acaggttata ttgcattttt agcagggtatt taatgatttt gctctgatta atcaggagat 1620

gtgcagctca ttatctccat attattaatg ctcaactgta gtaaactc g

1671

<210> 10
 <211> 433
 <212> PRT
 <213> Danio rerio

<400> 10

Met Ser Leu Leu Leu Val Phe Ser Leu Leu Trp Ser Leu His Tyr Cys
 1 5 10 15

His Ser Ala Ala Val Phe Val His Arg Asp Glu Ala His Glu Val Leu
 20 25 30

Ile Arg Ser Lys Arg Ala Asn Ser Gly Trp Phe Glu Glu Leu Lys Thr
 35 40 45

Gly Asn Leu Glu Arg Glu Cys Leu Glu Glu Lys Cys Ser Tyr Glu Glu
 50 55 60

Ala Arg Glu Val Phe Glu His Thr Glu Ala Thr Asn Glu Phe Trp Lys
 65 70 75 80

Ile Tyr Asp Val Lys Asp His Cys Ala Ser Ser Pro Cys Glu His Asp
 85 90 95

Gly Leu Cys Thr Thr Gln Asn Ala Asp Ser Tyr Met Cys Leu Cys Ala
 100 105 110

Pro Gly Phe Ser Gly Arg His Cys Glu Gln Ser Ile Gly Asp Val Leu
 115 120 125

Asp Ser Cys Leu His Asp Asn Gly Gly Cys Glu His Phe Cys Thr Glu
 130 135 140

Gln Asp Gly Arg Arg Asn Cys Ser Cys Ala Asp Gly Tyr Tyr Leu Asp
 145 150 155 160

Asn Ser Gly Gln Lys Cys Arg Ser His Glu Val Phe Pro Cys Gly Lys
 165 170 175

Val Pro Leu Leu Gln Ala Gly Lys Ala Ala Asp His Gln Val Asp Leu
 180 185 190

Arg Ser Arg Ile Val Gly Gly Ser Glu Cys Pro Lys Gly His Cys Pro

195	200	205
Trp Gln Val Leu Leu Lys Tyr Gly Glu Lys Gly Phe Cys Gly Gly Val 210 215 220		
Ile Tyr Lys Pro Thr Trp Ile Leu Thr Ala Ala His Cys Leu Glu Lys 225 230 235 240		
Leu Lys Val Lys Phe Leu Arg Ile Val Ala Gly Glu His Asp Leu Glu 245 250 255		
Val Asp Glu Gly Thr Glu Gln Leu Ile Gln Val Asp Gln Met Phe Thr 260 265 270		
His Pro Ala Tyr Val Ser Glu Thr Ala Asp Ser Asp Ile Ala Leu Leu 275 280 285		
Arg Leu Arg Thr Pro Ile Val Tyr Ser Val Tyr Ala Val Pro Val Cys 290 295 300		
Leu Pro Leu Arg Glu Met Ala Glu Arg Glu Leu Trp Ala Val Ser Lys 305 310 315 320		
His Thr Val Ser Gly Trp Gly Lys Arg Ser Glu Asp Gly Pro Thr Ser 325 330 335		
Arg Leu Leu Arg Arg Leu Leu Val Pro Arg Ile Arg Thr Gln Glu Cys 340 345 350		
Val Gln Val Ser Asn Leu Thr Leu Thr Ser Asn Met Phe Cys Ala Gly 355 360 365		
Tyr Ile Glu Gly Arg Gln Asp Ser Cys Lys Gly Asp Ser Gly Gly Pro 370 375 380		
Leu Val Thr Arg Tyr Arg Asp Thr Ala Phe Leu Leu Gly Ile Val Ser 385 390 395 400		
Trp Gly Lys Gly Cys Ala Arg Pro Gly Ser Tyr Gly Ile Tyr Thr Arg 405 410 415		
Val Ser Asn Tyr Leu Gln Trp Ile Arg Gln Thr Thr Asn Thr Thr Ile 420 425 430		

His

<210> 11
 <211> 1341
 <212> DNA
 <213> Mus musculus

<400> 11
 atggttccac aggcgcacatgg gctgctgctt ctctgctttc tgetccagct ccagggacct 60
 ctagggactg cagttttcat aaccaggag gaagcacatg gtgtcctaca caggcaaagg 120
 cgtgccaaact cactcctgga ggagctttgg cccggctctc tggagagaga gtgcaatgag 180
 gaacagtgtc cctttgagga ggcccgggag atcttcaaga gccctgagag gaccaagcag 240
 ttctggattg ttacagtga tggggaccag tgtgcctcga atccatgtca gaacgtaggt 300
 acctgccagg atcatctcaa gtcttacgtc tgcttctgcc tcttagactt tgagggtcgg 360
 aactgtgaga aaagcaagaa tgagcagctg atctgtgcaa atgaaaatgg tgactgtgac 420
 cagtactgca gggaccatgt agggaccaag cgtacctgta gctgtcatga ggactacacg 480
 ctacagccag atgaggtgtc ctgcaaacca aaagttgagt acccgtgtgg gagaatacct 540
 gttgtagaaa aaagaaactc cagcagccgc caaggccgca ttgtgggagg caacgtgtgc 600
 cccaaagggg agtgtccatg gcaggctgtg ctgaaaatca atgggttatt gctgtgtggg 660
 gccgtcctgc tggacgccag atggatagt accgcagccc actgcttcga taatatccgc 720
 tactggggaa acatcacagt ggtgatgggt gaacatgact tcagtgagaa ggatggggat 780
 gagcaagtac gacgggtgac acaggtcatc atgcccagaca agtacatccg cggcaagatc 840
 aaccacgaca ttgccctgct ccgccttcac cggcctgtga ccttcaactga ctacgtggtg 900
 ccctgtgtc tgctgaaaa gtccttctcc gagaacaccc tagccagaat ccgcttctca 960
 agggtcagtg gctggggcca gctactggac cgtggtgcca cagccctgga actcatgtcc 1020
 atcgaggtgc cccggctgat gaccaggag tgtctggagc acgccaagca cagctctaac 1080
 accccaaaaa tcacagagaa catgttctgc gctggctaca tggatgggtac caaggacgcc 1140
 tgcaagggtg acagcgggtg cccacatgcc acgcactacc atggcacatg gtatctgaca 1200
 ggtgtggtca gctgggggga gggctgtgca gctattgggtc acattgggggt gtacaccagg 1260
 gtctcccagt acatagactg gctggtcaga cacatggact ccaagctcca gggtgggggt 1320
 ttccgactcc cactactgta g 1341

<210> 12
 <211> 446
 <212> PRT
 <213> Mus musculus

<400> 12

Met Val Pro Gln Ala His Gly Leu Leu Leu Leu Cys Phe Leu Leu Gln
 1 5 10 15
 Leu Gln Gly Pro Leu Gly Thr Ala Val Phe Ile Thr Gln Glu Glu Ala
 20 25 30
 His Gly Val Leu His Arg Gln Arg Arg Ala Asn Ser Leu Leu Glu Glu
 35 40 45
 Leu Trp Pro Gly Ser Leu Glu Arg Glu Cys Asn Glu Glu Gln Cys Ser
 50 55 60
 Phe Glu Glu Ala Arg Glu Ile Phe Lys Ser Pro Glu Arg Thr Lys Gln
 65 70 75 80
 Phe Trp Ile Val Tyr Ser Asp Gly Asp Gln Cys Ala Ser Asn Pro Cys
 85 90 95
 Gln Asn Val Gly Thr Cys Gln Asp His Leu Lys Ser Tyr Val Cys Phe
 100 105 110
 Cys Leu Leu Asp Phe Glu Gly Arg Asn Cys Glu Lys Ser Lys Asn Glu
 115 120 125
 Gln Leu Ile Cys Ala Asn Glu Asn Gly Asp Cys Asp Gln Tyr Cys Arg
 130 135 140
 Asp His Val Gly Thr Lys Arg Thr Cys Ser Cys His Glu Asp Tyr Thr
 145 150 155 160
 Leu Gln Pro Asp Glu Val Ser Cys Lys Pro Lys Val Glu Tyr Pro Cys
 165 170 175
 Gly Arg Ile Pro Val Val Glu Lys Arg Asn Ser Ser Ser Arg Gln Gly
 180 185 190
 Arg Ile Val Gly Gly Asn Val Cys Pro Lys Gly Glu Cys Pro Trp Gln
 195 200 205
 Ala Val Leu Lys Ile Asn Gly Leu Leu Leu Cys Gly Ala Val Leu Leu
 210 215 220
 Asp Ala Arg Trp Ile Val Thr Ala Ala His Cys Phe Asp Asn Ile Arg
 225 230 235 240

Tyr Trp Gly Asn Ile Thr Val Val Met Gly Glu His Asp Phe Ser Glu
245 250 255

Lys Asp Gly Asp Glu Gln Val Arg Arg Val Thr Gln Val Ile Met Pro
260 265 270

Asp Lys Tyr Ile Arg Gly Lys Ile Asn His Asp Ile Ala Leu Leu Arg
275 280 285

Leu His Arg Pro Val Thr Phe Thr Asp Tyr Val Val Pro Leu Cys Leu
290 295 300

Pro Glu Lys Ser Phe Ser Glu Asn Thr Leu Ala Arg Ile Arg Phe Ser
305 310 315 320

Arg Val Ser Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala Thr Ala Leu
325 330 335

Glu Leu Met Ser Ile Glu Val Pro Arg Leu Met Thr Gln Asp Cys Leu
340 345 350

Glu His Ala Lys His Ser Ser Asn Thr Pro Lys Ile Thr Glu Asn Met
355 360 365

Phe Cys Ala Gly Tyr Met Asp Gly Thr Lys Asp Ala Cys Lys Gly Asp
370 375 380

Ser Gly Gly Pro His Ala Thr His Tyr His Gly Thr Trp Tyr Leu Thr
385 390 395 400

Gly Val Val Ser Trp Gly Glu Gly Cys Ala Ala Ile Gly His Ile Gly
405 410 415

Val Tyr Thr Arg Val Ser Gln Tyr Ile Asp Trp Leu Val Arg His Met
420 425 430

Asp Ser Lys Leu Gln Val Gly Val Phe Arg Leu Pro Leu Leu
435 440 445

<210> 13
<211> 1260
<212> DNA
<213> Gallus gallus

<400> 13
atggtttcca ggcagtgcgt ggctttgctg ctctgcttcc cgtcgtcggg tcctccttct 60

ctggaagcag tctttttaaa gcaggaagag gcaaacagca tttttcaaag gcacagaaga 120
 gccaatagct tctttgaaga gataaagctg gggccactag agcgagaatg catagaagaa 180
 aagtgttcat ttgaggaagc aagagagatc taccgtgatg atgagaggac aaaagagttc 240
 tggcacatct attctgaccc caaccagtgt gactccagcc cctgtcagaa cggaggggagc 300
 tgcgatgacc agtttcagga ttatgtctgc cgctgtcctc cggagtacga gggcaaaagc 360
 tgtgaaacag ctgtggccga gaacctgaag tgcatttacg acaacggcgg ctgtgagcag 420
 tactgtgctg acgagcagtc tgaaaaacga gtgtgcttct gtgcagaggg ctacgcttta 480
 gcgagtgatg gagtgtcctg cattcccaa gtgaaatacc cttgtggaac gataccagtg 540
 ctggcaagaa agaatacaac tgctcagggg agaatagtag gtggtgtcac ctgtcctccg 600
 ggtgaatgtc catggcaagc ccttataata caggatcaga aagggaaatg tgggggtagt 660
 ctgctctcac cagagtgggt ggtgactgca gctcattgcc tggactacgc tcattccaaa 720
 cagctccggg tgaggctggg tgaatactca gtaaaagttg ctgagaaaac tgagcaagaa 780
 agtggagtta gcaagatcat caggcacgaa gaatacacca ttggacaagt caatcatgac 840
 attgccctcc tgaagctgga aacacccgtg aatctcaccg atttcgttgt gccaatatgt 900
 ttgcctgaaa aacggtttgc agtgtacgag ctgtcctcca ttaagttctc aatggtgagc 960
 ggatggggac ggctactaga tggaggggct acttctactt ttctgatgcg agttcatttg 1020
 ccccggtgaa agacacaaga atgtgaaaag caggctaatt tgaacatcac cgagaatatg 1080
 ttctgtgcag gagacctgac cggtaaaaaa gactcctgca agggagacag tgggtggacct 1140
 cacgtacaa agtacaagaa cacctggttt ctgactggga ttgtcagctg gggaaagggt 1200
 tgtgctgttg aaggcagcta cggggtgtac acaagggtat ccagatacat caactgggtg 1260

<210> 14
 <211> 425
 <212> PRT
 <213> Gallus gallus

<400> 14

Met Val Ser Arg Gln Cys Val Ala Leu Leu Leu Cys Phe Pro Leu Leu
 1 5 10 15

Val Pro Pro Ser Leu Glu Ala Val Phe Leu Lys Gln Glu Glu Ala Asn
 20 25 30

Ser Ile Phe Gln Arg His Arg Arg Ala Asn Ser Phe Phe Glu Glu Ile
 35 40 45

Lys Leu Gly Pro Leu Glu Arg Glu Cys Ile Glu Glu Lys Cys Ser Phe

50		55		60
Glu Glu Ala Arg Glu Ile Tyr Arg Asp Asp Glu Arg Thr Lys Glu Phe				
65		70		75
Trp His Ile Tyr Ser Asp Pro Asn Gln Cys Asp Ser Ser Pro Cys Gln				
		85		90
Asn Gly Gly Ser Cys Asp Asp Gln Phe Gln Asp Tyr Val Cys Arg Cys				
		100		105
Pro Pro Glu Tyr Glu Gly Lys Ser Cys Glu Thr Ala Val Ala Glu Asn				
		115		120
Leu Lys Cys Ile Tyr Asp Asn Gly Gly Cys Glu Gln Tyr Cys Ala Asp				
		130		135
Glu Gln Ser Glu Lys Arg Val Cys Phe Cys Ala Glu Gly Tyr Ala Leu				
145		150		155
Ala Ser Asp Gly Val Ser Cys Ile Pro Gln Val Lys Tyr Pro Cys Gly				
		165		170
Thr Ile Pro Val Leu Ala Arg Lys Asn Thr Thr Ala Gln Gly Arg Ile				
		180		185
Val Gly Gly Val Thr Cys Pro Pro Gly Glu Cys Pro Trp Gln Ala Leu				
		195		200
Ile Ile Gln Asp Gln Lys Gly Lys Cys Gly Gly Ser Leu Leu Ser Pro				
		210		215
Glu Trp Val Val Thr Ala Ala His Cys Leu Asp Tyr Ala His Ser Lys				
225		230		235
Gln Leu Arg Val Arg Leu Gly Glu Tyr Ser Val Lys Val Ala Glu Lys				
		245		250
Thr Glu Gln Glu Ser Gly Val Ser Lys Ile Ile Arg His Glu Glu Tyr				
		260		265
Thr Ile Gly Gln Val Asn His Asp Ile Ala Leu Leu Lys Leu Glu Thr				
		275		280
Pro Val Asn Leu Thr Asp Phe Val Val Pro Ile Cys Leu Pro Glu Lys				
		290		295
				300

Arg Phe Ala Val Tyr Glu Leu Ser Ser Ile Lys Phe Ser Met Val Ser
305 310 315 320

Gly Trp Gly Arg Leu Leu Asp Gly Gly Ala Thr Ser Thr Phe Leu Met
325 330 335

Arg Val His Leu Pro Arg Val Lys Thr Gln Glu Cys Glu Lys Gln Ala
340 345 350

Asn Leu Asn Ile Thr Glu Asn Met Phe Cys Ala Gly Asp Leu Thr Gly
355 360 365

Lys Lys Asp Ser Cys Lys Gly Asp Ser Gly Gly Pro His Ala Thr Lys
370 375 380

Tyr Lys Asn Thr Trp Phe Leu Thr Gly Ile Val Ser Trp Gly Lys Gly
385 390 395 400

Cys Ala Val Glu Gly Ser Tyr Gly Val Tyr Thr Arg Val Ser Arg Tyr
405 410 415

Ile Asn Trp Leu Lys Arg His Met Glu
420 425

<210> 15
<211> 443
<212> PRT
<213> Oryctolagus cuniculus

<400> 15

Met Ala Pro Gln Ala Arg Gly Leu Gly Leu Cys Ser Leu Leu Ala Leu
1 5 10 15

Gln Ala Ser Leu Ala Ala Val Phe Ile Thr Gln Glu Glu Ala His Ser
20 25 30

Val Leu Arg Arg Gln Arg Arg Ala Asn Ser Phe Leu Glu Glu Leu Arg
35 40 45

Pro Gly Ser Leu Glu Arg Glu Cys Lys Glu Glu Leu Cys Ser Phe Glu
50 55 60

Glu Ala Arg Glu Val Phe Gln Ser Thr Glu Arg Thr Lys Gln Phe Trp
65 70 75 80

Ile Thr Tyr Asn Asp Gly Asp Gln Cys Ala Ser Asn Pro Cys Gln Asn
 85 90 95
 Gly Gly Ser Cys Glu Asp Gln Ile Gln Ser Tyr Ile Cys Phe Cys Leu
 100 105 110
 Ala Asp Phe Glu Gly Arg Asn Cys Glu Lys Asn Lys Asn Asp Gln Leu
 115 120 125
 Ile Cys Met Tyr Glu Asn Gly Gly Cys Glu Gln Tyr Cys Ser Asp His
 130 135 140
 Val Gly Ser Gln Arg Ser Cys Arg Cys His Glu Gly Tyr Thr Leu Leu
 145 150 155 160
 Pro Asn Gly Val Ser Cys Thr Pro Thr Val Asp Tyr Pro Cys Gly Lys
 165 170 175
 Val Pro Ala Leu Glu Lys Arg Gly Ala Ser Asn Pro Gln Gly Arg Ile
 180 185 190
 Val Gly Gly Lys Val Cys Pro Lys Gly Glu Cys Pro Trp Gln Ala Ala
 195 200 205
 Leu Met Asn Gly Ser Thr Leu Leu Cys Gly Gly Ser Leu Leu Asp Thr
 210 215 220
 His Trp Val Val Ser Ala Ala His Cys Phe Asp Lys Leu Ser Ser Leu
 225 230 235 240
 Arg Asn Leu Thr Ile Val Leu Gly Glu His Asp Leu Ser Glu His Glu
 245 250 255
 Gly Asp Glu Gln Val Arg His Val Ala Gln Leu Ile Met Pro Asp Lys
 260 265 270
 Tyr Val Pro Gly Lys Thr Asp His Asp Ile Ala Leu Leu Arg Leu Leu
 275 280 285
 Gln Pro Ala Ala Leu Thr Asn Asn Val Val Pro Leu Cys Leu Pro Glu
 290 295 300
 Arg Asn Phe Ser Glu Ser Thr Leu Ala Thr Ile Arg Phe Ser Arg Val
 305 310 315 320
 Ser Gly Trp Gly Gln Leu Leu Tyr Arg Gly Ala Leu Ala Arg Glu Leu

325	330	335
Met Ala Ile Asp Val Pro Arg Leu Met Thr Gln Asp Cys Val Glu Gln		
340	345	350
Ser Glu His Asn Pro Gly Ser Pro Glu Val Thr Gly Asn Met Phe Cys		
355	360	365
Ala Gly Tyr Leu Asp Gly Ser Lys Asp Ala Cys Lys Gly Asp Ser Gly		
370	375	380
Gly Pro His Ala Thr Ser Tyr His Gly Thr Tyr Leu Thr Gly Val Val		
385	390	395
Ser Trp Gly Glu Gly Cys Ala Arg Val Gly His Val Gly Val Tyr Thr		
405	410	415
Arg Val Ser Arg Asp Thr Glu Trp Leu Ser Arg Leu Met Arg Ser Lys		
420	425	430
Leu His His Gly Ile Gln Arg His Pro Phe Pro		
435	440	
<210> 16		
<211> 681		
<212> PRT		
<213> Mus musculus		
<400> 16		
Met Val Pro Gln Ala His Gly Leu Leu Leu Leu Cys Phe Leu Leu Gln		
1	5	10
Leu Gln Gly Pro Leu Gly Thr Ala Val Phe Ile Thr Gln Glu Glu Ala		
20	25	30
His Gly Val Leu His Arg Gln Arg Arg Ala Asn Ser Leu Leu Glu Glu		
35	40	45
Leu Trp Pro Gly Ser Leu Glu Arg Glu Cys Asn Glu Glu Gln Cys Ser		
50	55	60
Phe Glu Glu Ala Arg Glu Ile Phe Lys Ser Pro Glu Arg Thr Lys Gln		
65	70	75
Phe Trp Ile Val Tyr Ser Asp Gly Asp Gln Cys Ala Ser Asn Pro Cys		
85	90	95

Gln Asn Val Gly Thr Cys Gln Asp His Leu Lys Ser Tyr Val Cys Phe
 100 105 110

Cys Leu Leu Asp Phe Glu Gly Arg Asn Cys Glu Lys Ser Lys Asn Glu
 115 120 125

Gln Leu Ile Cys Ala Asn Glu Asn Gly Asp Cys Asp Gln Tyr Cys Arg
 130 135 140

Asp His Val Gly Thr Lys Arg Thr Cys Ser Cys His Glu Asp Tyr Thr
 145 150 155 160

Leu Gln Pro Asp Glu Val Ser Cys Lys Pro Lys Val Glu Tyr Pro Cys
 165 170 175

Gly Arg Ile Pro Val Val Glu Lys Arg Asn Ser Ser Ser Arg Gln Gly
 180 185 190

Arg Ile Val Gly Gly Asn Val Cys Pro Lys Gly Glu Cys Pro Trp Gln
 195 200 205

Ala Val Leu Lys Ile Asn Gly Leu Leu Leu Cys Gly Ala Val Leu Leu
 210 215 220

Asp Ala Arg Trp Ile Val Thr Ala Ala His Cys Phe Asp Asn Ile Arg
 225 230 235 240

Tyr Trp Gly Asn Ile Thr Val Val Met Gly Glu His Asp Phe Ser Glu
 245 250 255

Lys Asp Gly Asp Glu Gln Val Arg Arg Val Thr Gln Val Ile Met Pro
 260 265 270

Asp Lys Tyr Ile Arg Gly Lys Ile Asn His Asp Ile Ala Leu Leu Arg
 275 280 285

Leu His Arg Pro Val Thr Phe Thr Asp Tyr Val Val Pro Leu Cys Leu
 290 295 300

Pro Glu Lys Ser Phe Ser Glu Asn Thr Leu Ala Arg Ile Arg Phe Ser
 305 310 315 320

Arg Val Ser Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala Thr Ala Leu
 325 330 335

Glu Leu Met Ser Ile Glu Val Pro Arg Leu Met Thr Gln Asp Cys Leu
340 345 350

Glu His Ala Lys His Ser Ser Asn Thr Pro Lys Ile Thr Glu Asn Met
355 360 365

Phe Cys Ala Gly Tyr Met Asp Gly Thr Lys Asp Ala Cys Ala Gly Asp
370 375 380

Ser Gly Gly Pro His Ala Thr His Tyr His Gly Thr Trp Tyr Leu Thr
385 390 395 400

Gly Val Val Ser Trp Gly Glu Gly Cys Ala Ala Ile Gly His Ile Gly
405 410 415

Val Tyr Thr Arg Val Ser Gln Tyr Ile Asp Trp Leu Val Arg His Met
420 425 430

Asp Ser Lys Leu Gln Val Gly Val Phe Arg Leu Pro Leu Leu Gly Ser
435 440 445

Ala Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro
450 455 460

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
465 470 475 480

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
485 490 495

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
500 505 510

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
515 520 525

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
530 535 540

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
545 550 555 560

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
565 570 575

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu
580 585 590

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
595 600 605

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
610 615 620

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
625 630 635 640

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
645 650 655

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
660 665 670

Lys Ser Leu Ser Leu Ser Pro Gly Lys
675 680

<210> 17
<211> 407
<212> PRT
<213> Bos taurus

<400> 17

Ala Asn Gly Phe Leu Glu Glu Leu Leu Pro Gly Ser Leu Glu Arg Glu
1 5 10 15

Cys Arg Glu Glu Leu Cys Ser Phe Glu Glu Ala His Glu Ile Phe Arg
20 25 30

Asn Glu Glu Arg Thr Arg Gln Phe Trp Val Ser Tyr Asn Asp Gly Asp
35 40 45

Gln Cys Ala Ser Ser Pro Cys Gln Asn Gly Gly Ser Cys Glu Asp Gln
50 55 60

Leu Arg Ser Tyr Ile Cys Phe Cys Pro Asp Gly Phe Glu Gly Arg Asn
65 70 75 80

Cys Glu Thr Asp Lys Gln Ser Gln Leu Ile Cys Ala Asn Asp Asn Gly
85 90 95

Gly Cys Glu Gln Tyr Cys Gly Ala Asp Pro Gly Ala Gly Arg Phe Cys
100 105 110

Trp Cys His Glu Gly Tyr Ala Leu Gln Ala Asp Gly Val Ser Cys Ala
 115 120 125

Pro Thr Val Glu Tyr Pro Cys Gly Lys Ile Pro Val Leu Glu Lys Arg
 130 135 140

Asn Gly Ser Lys Pro Gln Gly Arg Ile Val Gly Gly His Val Cys Pro
 145 150 155 160

Lys Gly Glu Cys Pro Trp Gln Ala Met Leu Lys Leu Asn Gly Ala Leu
 165 170 175

Leu Cys Gly Gly Thr Leu Val Gly Pro Ala Trp Val Val Ser Ala Ala
 180 185 190

His Cys Phe Glu Arg Leu Arg Ser Arg Gly Asn Leu Thr Ala Val Leu
 195 200 205

Gly Glu His Asp Leu Ser Arg Val Glu Gly Pro Glu Gln Glu Arg Arg
 210 215 220

Val Ala Gln Ile Ile Val Pro Lys Gln Tyr Val Pro Gly Gln Thr Asp
 225 230 235 240

His Asp Val Ala Leu Leu Gln Leu Ala Gln Pro Val Ala Leu Gly Asp
 245 250 255

His Val Ala Pro Leu Cys Leu Pro Asp Pro Asp Phe Ala Asp Gln Thr
 260 265 270

Leu Ala Phe Val Arg Phe Ser Ala Val Ser Gly Trp Gly Gln Leu Leu
 275 280 285

Glu Arg Gly Val Thr Ala Arg Lys Leu Met Val Val Leu Val Pro Arg
 290 295 300

Leu Leu Thr Gln Asp Cys Leu Gln Gln Ser Arg Gln Arg Pro Gly Gly
 305 310 315 320

Pro Val Val Thr Asp Asn Met Phe Cys Ala Gly Tyr Ser Asp Gly Ser
 325 330 335

Lys Asp Ala Cys Lys Gly Asp Ser Gly Gly Pro His Ala Thr Arg Phe
 340 345 350

Arg Gly Thr Trp Phe Leu Thr Gly Val Val Ser Trp Gly Glu Gly Cys
355 360 365

Ala Ala Ala Gly His Phe Gly Ile Tyr Thr Arg Val Ser Arg Tyr Thr
370 375 380

Ala Trp Leu Arg Gln Leu Met Gly His Pro Pro Ser Arg Gln Gly Phe
385 390 395 400

Phe Gln Val Pro Leu Leu Pro
405